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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/987,262

11/14/2001

Miho Hatanaka

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22850

7590

10/06/2003

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EXAMINER

WRIGHT, WILLIAM G

ART UNIT

PAPER NUMBER

1754

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/987,262

Applicant(s)

HATANAKA ET AL.

Examiner

William G. Wright SR.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 17-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 26-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-31 are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5,6,7 and 9
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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Restriction to one of the following inventions is required under 35 U.S.C. § 121:

I. Claims 1-16 and 26-31, drawn to a product of composite oxide powders and catalysts containing said powders, classified in Class 502, subclass 232+.

II. Claims 17-25, drawn to method of making a composite oxide powder, classified in Class 423, subclass 324.

The inventions are distinct, each from the other because of the following reasons:

Inventions Group II and Group I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by a materially different process such as the sol gel process.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

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During a telephone conversation with Rohitha Jayasuriya on August 18, 2003 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-16 and 26-31. Affirmation of this election must be made by applicant in replying to this Office action. Claims 17-25 stand withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. § 103(c) and potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103(a).

Claims 1-16 and 26-31 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Brezny et al. '451 or Suzuki et al. '288 each in view of Bouruetaubertot et al. '758.

Brezny teaches the instant claimed particles with the use of mixed metal oxides. These teachings are found in the Detailed Description of the Invention at column 3 et seq. The specific use of a Group II metal is taught at column 4 line 66 where calcium oxide is noted. Examples 1 and 2 of column 10 teach calcining at 1000°C after calcining at 500°C for 4 hours. The instant particle size is taught at column 4 line 42 et seq. The claims teach cerium oxide with zirconium oxide along with the instant claimed particle size. Other rare earth elements are

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taught in claim 32. Suzuki teaches the instant claimed particles made of mixed metal oxides at the Abstract and in column 2. The specific teaching of the use of aluminum, as is contemplated in the instant metal group  $M_2$ , is found at column 2 line 44. The teaching toward aluminum is again taught at column 7 line 50. The instant particle size is taught at columns 12 and 13 where nanometer size composite particles are found. The claims teach the same elements and particle size.

The primary references each lack the feature of the teaching of a specific pore volume.

Bouruetaubertot teaches a range of pore volume for the applicant's pore size and there is overlap. In re Malagari, 182 USPQ 549 is cited in support of the rejection and the overlapping ranges found in the references and instant claims. Note the Abstract and claims of the reference for these teachings.

The Bouruetaubertot reference teaches the use of the same compositions as the other applied references for the same purpose with a teaching of pore diameter and pore volume. These teachings produce a composition well adapted to catalytic applications. This teaching is found in the Abstract. The desirability of and motivation for good catalytic properties is well stated by the Abstract and the specification in general of the supporting reference. With the taught feature of overlapping pore volume, the instant claimed invention is obvious.

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Claims 1-16 and 26-31 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Rajaramen et al. '762 or Dettling et al. '029 or Suda et al. '276 each in view of Bouruetaubertot et al. '758.

Rajaramen teaches the applicant's mixed oxide compositions using cerium, zirconium and titanium oxide in a mixed metal oxide composite. These teachings are found in column 2 of the reference. The claims teach this as well, where particle size is also taught. Dettling also teaches at least two metal oxides to be used in a mixed metal oxide composite. These teachings are found at column 3 et seq. and in the claims. The instant particle size is also taught at the noted areas of the reference. Suda teaches the use of titanium-zirconia-yttria powder at the Abstract and in the Detailed Description of the Invention. The particle size of less than 1 micron is taught in claim 6, and the calcination of 800°C for 5 hours is taught at claim 2.

The Bouruetaubertot reference teaches the same utility as the other applied references with the use of a mixed metal oxide composition, at column 2 line 40 et seq. The instant particle size is taught at column 3 line 3 et seq. and in the Examples. The teaching of pore volume is found in the Examples, claims and in the Abstract where it is taught that the compositions of the supporting reference are desirable for use in good catalysts. Thus this desire for a good catalyst provides motivation to use

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the instant claimed pore volume overlap of the reference. In re Malagari, 182 USPQ 549 is cited in support of the overlap in pore volume ranges between the reference and the instant claims, to show the instant invention to be obvious in view of the applied references.

Claims 1-16 and 26-31 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Zhang et al. '565 in view of Bouruetaubertot et al. '758.

Zhang teaches a nanocrystalline cerium zirconium composite oxide with the instant utility. These teachings are found in the abstract and in column 1 of the reference. The reference teaches calcining temperatures in the Examples that are the same as in the instant claims. The reference teaches the use of silicon and aluminum in claim 6 and in column 3 line 20 et seq.

Zhang fails to teach the specific pore volume found in the instant claims.

Bouruetaubertot teaches the same utility as the primary reference with the use of a mixed metal oxide composition at column 2 line 40 et seq. The instant particle size is taught at column 3 line 3 et seq. and in the Examples. The teaching of pore volume is found in the examples, claims and in the abstract where it is taught that the compositions of the supporting reference are desirable for use in good catalysts. Thus this



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desire for a good catalyst provides motivation to use the instant claimed pore volume which overlaps the reference. In re Malagari, 182 USPQ 549 is cited in support of the overlapping pore volume ranges between the reference and the instant claims, to show the instant claimed invention to be obvious in view of the applied reference.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William G. Wright, Sr. whose telephone number is (703) 305-7792. The examiner can normally be reached on Monday through Thursday from 6:30 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on (703) 308-3837. The fax phone number for the organization where this application or proceeding is assigned are (703) 872-9306 for the regular communications and (703) 872-9311 for after final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1495.

WGWS

W. G. Wright, Sr.:cdc

September 29, 2003



STEVEN BOS  
PRIMARY EXAMINER  
GROUP 1100